

50X1-HUM<sup>15</sup>

**SECTION X. THE CARPATHIAN ARC AND THE INNER-  
CARPATHIAN DEPRESSION.**

This project includes the entire Carpathian arc between the Danube near Vienna and the Danube between Belgrade and Turnu-Severin, also the intermediate mountains of the Transylvanian ore mountains. The Inner-Carpathian Depression includes the Transylvanian basin and the Middle Danubian basin, which is made up of three parts: the Little and the Great Hungarian Plains and the Pannonian basin.

In order to avoid the confusion caused by the different town names and other geographic names, a list was drawn up giving all geographic names which appear in this work in the former and present official languages.

In the geological-tectonic summary, the entire region is subdivided into Western Carpathians, Forest Carpathians, Eastern Carpathians, and Southern Carpathians, the Transylvanian mountains, the Transylvanian basin, and the Middle Danubian basin.

In the individual descriptions of the ore deposits, there have been subdivided according to their ages, and classified in the following orogenetic groups:

1. Pre-Varistian deposits
2. Varistian deposits
3. Old Cimmerian deposits
4. Austro (?) deposits
5. Laramie deposits
6. Recent Tertiary deposits
7. Deposits of sedimentary origin

The discussion of each group is preceded by a general review of the mineralisation within that particular orogenetic phase. Depending on the number of the deposits, these are subdivided according to regions, and compiled according to generic or metallic groups. At the end of the discussion of each group of deposits, the relations between tectonics, magma, and deposit formation are again summarised in brief.

For the sake of completeness, not only are the magmatogenous deposits discussed, but those of sedimentary origin are also briefly described.

The results of the investigations of the deposits are summarised on the basis of the entire area in the last two chapters, which discuss the ore deposit formations in their relationship to the orogenic and magmatic phases and the dependence of the distribution of the ore deposits on tectonic master lines. Attempts are made to find the connection between these tectonic structure lines and the area of the Dinarides and Balkanides. The findings obtained in the discussion of that area are further developed here and show surprisingly close relationship in the tectonic-magmatic conditions and the mineralisation connected with them.

It is shown that in the region of the Carpathians the Pre-Variscian deposits play a certain role in the form of regional metamorphously influenced, and to some extent also contact-metamorphously influenced, pyrite, iron ore, and manganese ore deposits. In contrast, Variscian deposits are of little importance. The greatest number of deposits and the most important ones belong to the category of the Alpidic folding era and, within this, primarily to the Laramie and recent Tertiary phases. The Alpidic mineralisation is characterised by its high metallic content. Especially gold accumulated in some regions, so that these deposits are the most important gold mines of Europe. Not only do all magmatic deposits of the various phases of one region show a high degree of similarity, but also the individual regions resemble each other. It is thus to be assumed that they originated from one widely distributed magma.

According to the hypothesis advanced by Stille in 1940, these recent mineralisations are connected with lithogenous sialic magmata. A basic hypogenous volcanism can be detected only in the first three weaker folding phases in the initial and the final stages of the Alpidic era, in the form of isolated basalt eruptions. The initial

basic volcanism in the Carpathians is connected to liquid-magmatic ore deposits in the Carpathians only to a slight extent. However, in the neighboring Balkans, in the Varcar zone, important chrome ore deposits are bound to it.

The distribution of the ore deposits shows interesting relationships to deep fissure zones of the earth's crust, which are called master structural lines. These lines must be considered as the lines of uprise of the magma and of the magmatic extractions formed by differentiation processes from the region of anatexis to the upper crust of the earth. In addition to directions caused by the local tectonics of the upper crust, they also show a large-scale arrangement which allows conclusions to be drawn concerning the tension conditions, especially those prevailing in the lower crust. The master structural lines which are important for the mineralization of the Carpathians and of the Balkanides can be interpreted as tension fissures which have formed around the Wallachian spur of the Russian Table. In the course of geological evolution they have frequently moved as block borders.